

# PROCEEDINGS

## of the American Society of Civil Engineers

2 PARTS

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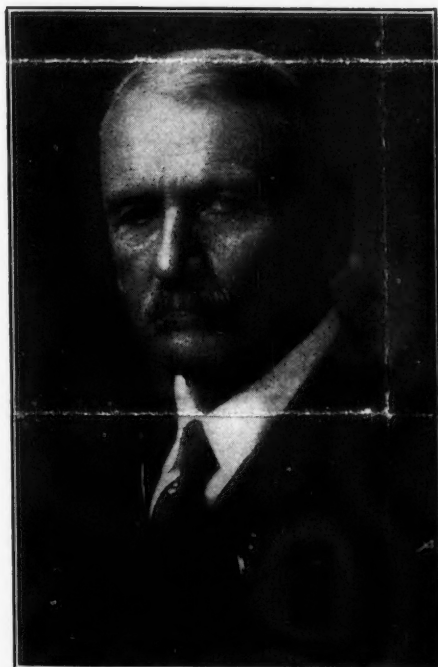
**JOHN FRANK STEVENS**, President of the American Society of Civil Engineers for the year 1927, has been fortunate beyond most engineers in the part he has been called upon to play in stupendous national and international enterprises.

*Experiences that may not be told except in confidence to intimates are his in unusual measure and any public account of his life is therefore robbed of much of its romance. For the biography given in this issue, that members may know more of him whom they have chosen to be President, acknowledgment is due a brochure prepared in connection with the presentation to Mr. Stevens on March 23, 1925, of the John Fritz Medal.*

**JOHN FRANK STEVENS** was born at West Gardiner, Maine, April 25, 1853. He attended the common school and the State Normal School. Like half the medalists\*, he got his education outside of college. His first engineering experience was with a firm of engineers at Lewiston, but the West soon drew him away from Maine. In 1874 and 1875 he was rodman on the staff of the City Engineer of Minneapolis. Two years he was on railway surveys in Texas; the two following years, assistant engineer on the Denver and Rio Grande Railroad, and in 1880-81, locating engineer on the Chicago, Milwaukee and St. Paul.

From 1882 to 1885 Stevens was with the Canadian Pacific Railway, but in 1886 returned to the Milwaukee. Two years followed as principal assistant engineer in locating and building the Duluth, South Shore and Atlantic Railway from Sault Ste. Marie to Duluth. Early in 1889 he became locating engineer of the Spokane Falls and Northern Railway. Later the same year he entered the service of the Great Northern Railway as principal assistant engineer. In 1893 he was assistant chief engineer, in 1895 chief engineer, and in 1902 general manager, also. For this railway his two

\*20 in number



JOHN FRANK STEVENS  
President Am. Soc. C. E.

outstanding services were the discovery of the Marias Pass, the best railroad pass across the Rocky Mountains, and the building of the Cascade Tunnel, 13,873 feet long. In 1903 he became chief engineer of the Chicago, Rock Island and Pacific

Railway, and the following year its Second Vice-President.

In 1905 Mr. Stevens was appointed chief engineer of the Panama Canal. In February, 1907, he was made Chairman of the Isthmian Canal Commission; he resigned in April. Arriving on the Isthmus July 26, 1905, he found chaos, due to many conditions not yet mastered. He left marvelous order, expressed in effectiveness, economy, healthfulness and loyalty. The decision had been made to build the canal with locks. An organization had been built up and equipment procured for rapid construction.

From 1907 to 1909 Mr. Stevens was Vice-President of the New York, New Haven and Hartford Railroad, in charge of operation; 1909 to 1911, President of the Spokane, Portland and Seattle Railway, the Oregon Trunk Railway, and the Pacific and Eastern Railway. From 1911 to 1917 he was in consulting practice in New York City, engaged in railroad affairs.

To help Russia in response to request of the Kerensky government, the United States sent a commission of railway experts in May, 1917; Mr. Stevens was its Chairman. He spent six years in Russia, Japan and Manchuria, becoming in 1919 President of the Inter-Allied Technical Board, with headquarters at Harbin, Manchuria. The commission made recommendations for increase of effectiveness of the great railway systems stretching 5500 miles from Kola Bay across Europe and Asia to Vladivostock. Amidst revolution, disease and famine, Mr. Stevens and a band of devoted American railway men of all ranks operated the crippled railways and kept open "the back door to Russia." By this means the Czech army, cut off by the collapse of the Russians, was enabled to fight its way out and complete its

journey around the world to re-enter the war on the western front. For six years his constructive response to calls to service in those troubled places in Asia was a great service to country and mankind.

Mr. Stevens returned to the United States in 1923, since which time he has been engaged in consultation work on railroad problems, notably recently in connection with the receivers' sale of the Chicago, Milwaukee and St. Paul.

The following list of honors conferred upon Mr. Stevens by various Governments is impressive:

Distinguished Service Medal, United States  
 Officer of the Legion of Honor of France  
 Second Class Order of the Rising Sun, Japan  
 Order of Chia Ho (Golden Grain), China, highest civil decoration  
 Order of Wen Hu (Striped Tiger), China, highest military decoration  
 Czechoslovak Military Cross.

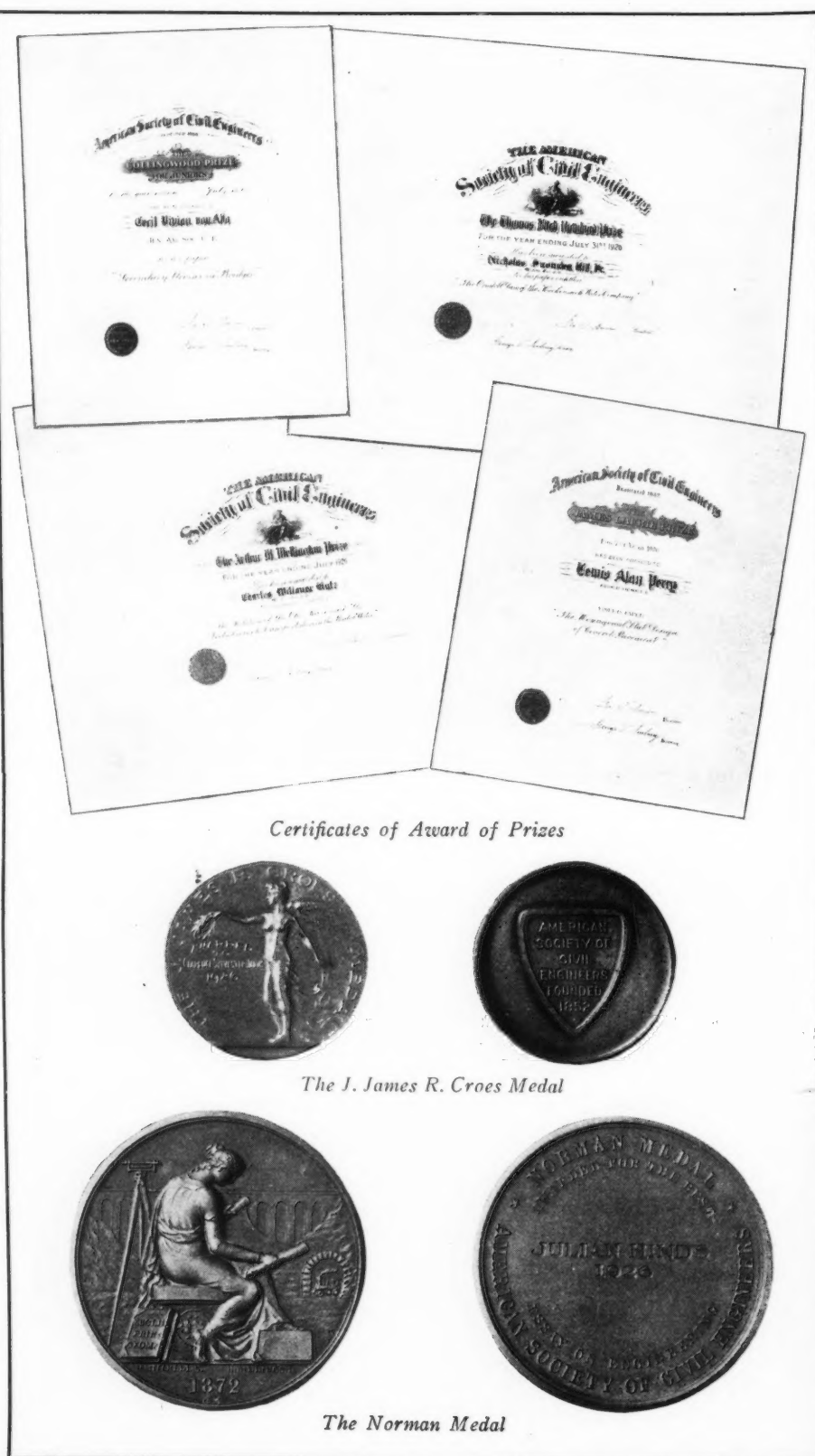
## Medals and Prizes

**E**ACH year, if conditions are fulfilled, the Society awards two medals and four prizes for meritorious papers. The accompany cuts show, full size, the obverse and reverse of each of the two gold medals and, much reduced, the engraved certificates accompanying the prizes.

The Norman Medal has a value of approximately \$60. The J. James R. Croes Medal, a value of approximately \$40. Accompanying each medal is a gold-washed bronze replica similarly mounted in a suitable case. The prizes are sums of money in each case. The Thomas Fitch Rowland Prize consists of \$60 in cash; the James Laurie Prize, of \$40 in cash; the Arthur M. Wellington Prize, of \$75 in cash; and the Collingwood Prize for Juniors, of \$50 in cash.

Awards are made by the Board of Direction of the Society, upon the recommendation of a committee composed of three Corporate Members, not members of the Board. The papers considered, include all papers published in the Transactions of the current year.

Presentation of the medals and prizes constitutes a definite part of the program at the morning session the first day of the Annual Meeting. The meeting being in session, at the announced time and under the escort of a Marshal, the several recipients,



*Certificates of Award of Prizes*

*The J. James R. Croes Medal*

*The Norman Medal*

each accompanied by a friend, are conducted to the platform.

In sequence, the friends present the recipients to the President and in

a few words tell of their work in general or of the circumstances incident to the papers for the excellence of which the awards are made.

## Why?—Because!

"WHY did you join the Society?" was asked of the 1000 men most recently elected—and these are some of their answers:

As a spur to advancement.  
Frankly and crudely—the badge.  
Success in the profession demands it.

To satisfy a natural professional interest.

The Society promotes the principle of "fair play."

The most respected of my engineer friends are members.

That I might help to raise the standards of engineering.

If not a member, an engineer's ability is likely to be questioned.

Because the Society has organized a wide-awake City Planning Division.

I began to experience some feeling of isolation "outside of the fold."

To secure somewhat better opportunities for assisting and influencing students.

To help bring about a better understanding between engineers and contractors.

Hope for a proof to the public that I am what I represent myself to be—an engineer.

To give me at least a reading acquaintance with the more prominent members of the Society.

To regain contact with the civil engineering world after a 3-years' absence in the Tropics.

To give, if occasion presents itself, of my experience something that will help other engineers. (Age—57)

I am often on the witness stand as an expert and think membership may be helpful in qualifying.

As a rule engineers are unsocial creatures and advantage should be taken of every means to overcome this tendency.

Because of the fine example set in handling engineering problems by my former chief, ———, Member, Am. Soc. C. E.

A professional man who neglects to support the associations that have been organized for the good of his profession neglects a real duty.

Because of the fine example set in handling engineering problems by my ties or religion, observing a Code of Ethics that holds them above mean acts.

Unless you are connected with a Society of this nature I find your

tendency is to lose contact and interest in the advances of your profession.

## Progress in 1926

SOME incidents of Society activity in the past year are:

\$60,000 paid on mortgage.

This publication authorized.

Surveying and Mapping Division organized.

Leasehold on 57th Street Property signed.

Columbia Scholarship awarded to J. J. Domas.

New design for Junior and Student pins adopted.

Code of Ethics artistically printed for display.

New members required to subscribe to "Code of Ethics".

Committee on Technical Procedure authorized and organized.

Certificate plan a success for first time at Annual Meeting.

63 papers and 217 discussions printed in Proceedings.

Financial support accorded Stevenson Creek test of full-sized arch dam.

Eight Technical Divisions review "150 Years of Progress in Engineering".

Tour arranged in connection with the Summer Meeting—last year, to Alaska.

Survey of activities of Local Sections reported to Local Sections Conference.

Employment Service Bulletin sent free to graduating members of Student Chapters.

Endorsement of bill in Congress *re* Conservation of Water Resources of the United States.

Support before Congressional Committees of City Planning Commission for Washington, D. C.

Payment of dues by new members in year of election prorated on basis of date of election.

Condemnation of practice by public authorities of asking for bids for engineering services.

Technical Divisions appoint several Division Committees to report to them on specific subjects.

Contacts established with activities of other organizations by appointment of 55 representatives.

By-laws amended permitting members of Student Chapters to more easily become Junior members of the Society.

Protest against practice of placing professional engineers in bond for faithful performance of engineering services.

Preparation by committee of a Local Section of a Code of Professional Practice. Referred to membership for comment.

Employment Service, nationalized by offices at New York, Chicago and San Francisco, secured positions for 1193 members.

Approbation of attitude that public positions requiring engineering training be filled by the appointment of persons who are engineers.

Constitution changed to permit of Board of Direction initiating expulsion proceedings and to permit of Board of Direction effecting expulsion instead of, as formerly, by vote of membership.

## Society Growth

THE Annual Report of the Board of Direction makes mention of several items felt to warrant especial notice. One of these is the growth in membership in 1926.

The net increase in membership in all grades is 192 greater than any other year in the history of the Society. We have to go back to 1911 when the gain was 529 to find the figure nearest approaching it. As of January 1, 1927, the total was 12,002, an increase of 721 over the same date last year.

Early in December the 12,000 mark was reached and exceeded, but that month always sees a number of resignations and a provision of the By-laws requires that others be dropped for non-payment of dues. However, the new year came in with 2 qualified members over the even figure.

The following table shows the situation with respect to last year:

Grade	Jan. 1, 1926	Jan. 1, 1927	Increase
Hon. M.	15	14	1*
Members	5045	5211	166
Assoc. M.	5242	5496	254
Juniors	821	1125	304
Affiliates	150	148	2*
Fellows	8	8	0

Total 11281 12002 721

The net increase in other years of marked growth is as follows: 1911—529; 1910—505; 1920—499; 1913—495; and 1907—494.

\*Decrease



## "Public Service"

**R**ELATIVE to the selection of a Board of Engineers to develop a program with respect to the control of the San Gabriel River, the President of the Los Angeles Chamber of Commerce is quoted as follows:

"After very thorough investigation and consideration of the qualifications of over fifty engineers including all names which had been suggested to us, the Los Angeles Section, American Society of Civil Engineers, submitted a final list of fifteen names to our group, together with their rating on each point tabulated in the selection schedule. This difficult and delicate task was performed in a spirit of high public service, and so confident were the representatives of the Chamber of Commerce and the other civic bodies of the scientific fairness of this selection, that our choice for the board of engineers was made from the first few names on this list."

A letter from President R. H. Hill, of the Los Angeles Local Section, states:

"The Board of Supervisors acted favorably upon this matter and three members of the Society, namely, Charles H. Paul, Frederick H. Fowler, and Charles D. Marx have been appointed to 'Make a complete investigation and study of all phases of the control and conservation of the flood waters of the San Gabriel and make a public report of your findings and conclusions as to that plan of development which best balances all hydraulic and economic factors.'"

## Division Committees

**T**WO Technical Division Committees seem to deserve special mention at this time.

For the Construction Division the entire program at the Annual Meeting was arranged by that Division's Committee on Construction Engineering Education, Dean H. J. Hughes of Harvard, Chairman; Prof. Theodore M. Crane of Yale; and Charles R. Gow, Prof. C. M. Spofford and Leonard C. Wason, all of Boston.

In this Committee will be noted the desirable policy of selecting Division committee members territorially for the purpose of saving expense and of effective and quick action.

Another committee both formed and acting quickly also reported at the Annual Meeting. This was the Structural Division's Committee on Florida Hurricane Effects, H. G. Balcom (New York), Chairman; David C. Coyle (New York), F. R.

McMillan (Chicago), Lee H. Miller (Cleveland) and Clyde T. Morris (Columbus).

Immediately following the disastrous Florida storm, the need of this committee was recognized and a man was sent to Florida to study the effects of the hurricane on engineering structures. The promptness with which this Committee was appointed and the despatch with which it completed its work reflects credit both upon the Division and the Committee.

## February Proceedings

**I**T is unusual for the Society to publish an authoritative description of an immense engineering project before its completion. Such is the paper "Construction Methods of the Moffat Tunnel," by R. H. Keays, Member. This work (in Colorado) is notable from the economic, the political, and the engineering standpoint. The paper reviews especially the engineering problems and successes up to August 1, 1925, (62% of the work). As the whole 6.11 miles of double tunnel will be completed within a few months, the discussion will carry the entire history of this important project to its completion.

The paper "Economic and Engineering Problems of Highway Location," by W. W. Crosby, Member of the Society, describes itself in its title. Even beyond the scope of subject matter indicated, this review covers the general question of highway engineering in a broad way, not confining itself to construction but dealing with location, construction and administrative features as well.

The closing discussion of the paper "Stresses in Thick Arches of Dams," by B. F. Jakobsen, Member, also deserves special mention. He gives the results of his further extended studies, together with actual examples of the application of his theories, and comments on the various points of view expressed by other discussors.

Many other valuable discussions are presented, covering papers presented to the Society and representing the ideas of 23 engineers. Memoirs of 7 deceased members complete the February Proceedings.

## "Up to the Minute"

**A**N extremely interesting exhibit of what Society members and committees are accomplishing was on display at Headquarters throughout the Annual Meeting.

From Iowa; from M. I. T.; Princeton University; Ohio State University; and Washington, D. C., had been collected models, charts, and apparatus, showing the most up-to-the-minute methods now used for the analysis of stresses in structures.

The Westchester County Park Commission which has developed what may unquestionably be said to be a new engineering type—the rigid frame bridge—formed the nucleus of the exhibit with models of the structures that have been erected by that Commission.

The consensus of opinion was that the exhibit should be written up at far greater length than is permissible here and an effort will be made to have an account appear in a forthcoming issue of Proceedings.

## Moving Day

**S**OME day shortly all the photographs in the Reading Room at Society Headquarters will be taken down (dusted) and moved exactly one space to the left.

The room is paneled in oak and each panel contains photographs of two Past-Presidents of the Society. The shift is made in order that the photograph of Mr. Stevens may occupy, for a year, the post of honor on the right of the line.

In years gone by, the walls of the Society's Headquarters on 57th Street permitted an adequate display of the old-style photographs or oil portraits of some of the earlier Presidents.

In 1924, however, a complete collection of satisfactory portraits of each of the Presidents was secured (there are now 58) and handsome reproductions made. Each is 7 x 9 inches in size, framed neatly, and, as hung, nearly surround the entire room, making a very imposing collection which has the added merit of being uniform in style.

Each reproduction is done by a special process and is guaranteed not to fade in 200 years. Whether or not the guaranty is ever exacted their present appearance is most satisfactory.

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